



# Nintendo Switch Lite Teardown

In case you haven't heard, there's a new Switch...

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# INTRODUCTION

In case you haven't heard, there's a new Switch on the block: it's the Nintendo Switch Lite, and it comes with less in order to cost you less. It also arrives in some hot new colors—which only distract us momentarily, before we remember we're here for a teardown. Grab your tools and let's take apart the new Switch Lite.

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## TOOLS:

[Phillips #00 Screwdriver](#) (1)  
[Tri-point Y00 Screwdriver](#) (1)  
[iOpener](#) (1)  
[iFixit Opening Picks \(Set of 6\)](#) (1)  
[Suction Handle](#) (1)  
[Spudger](#) (1)

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## Step 1 — Nintendo Switch Lite Teardown



- A wild Switch Lite appeared! What does the Nintendex say about it?
- Custom NVIDIA Tegra processor
- Built-in 5.5" capacitive touchscreen LCD with 1280 × 720 resolution
- 32 GB of internal storage (up to 2 TB additional storage via microSDHC or microSDXC card)
- 802.11 a/b/g/n/ac Wi-Fi, Bluetooth 4.1, NFC, USB Type-C port (charging only), and 3.5 mm audio jack
- Built-in accelerometer and gyroscope
- Rechargeable lithium-ion battery capable of 3.0 - 7.0 hours play time
- Evolved with un-detachable controllers

## Step 2



- Before we begin, we turn on our X-ray Game Genie, courtesy of our pals at [Creative Electron](#).
- Compared with modern smartphones, there's a lot of bezel on this device, so our usual [teardown wallpaper](#) treatment may not quite cut it. Maybe if we also made a skin ...

## Step 3



- We yanked *really* hard on the controls in the hope of scoring two new bright yellow Joy-Cons, but alas, they don't detach.
  - It seems a more traditional disassembly will be required.
- The integrated controls do include an honest-to-goodness D-pad, however.
- Other exterior changes: the IR blaster from the right Joy-Con got the axe, and the speakers have migrated from the front (OG Switch) to the bottom (Switch Lite).
- The Lite also lacks the original Switch's kickstand, making this the most aerodynamic Switch ever.

## Step 4



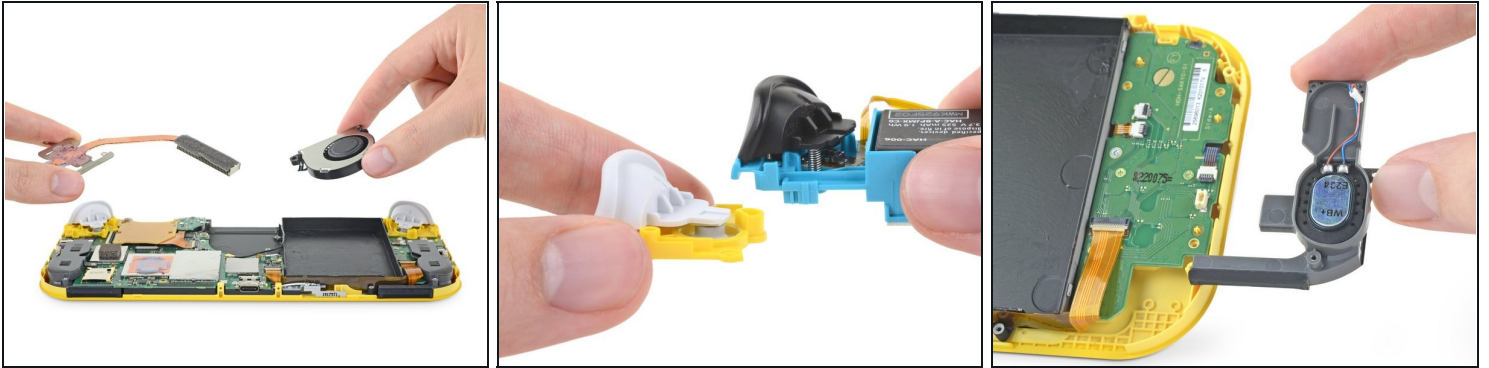
- The way is blocked by impassable (tri-point) screws. We can't progress further until we find and acquire the special tool.
- No distracting side quests today—we're on a mission and we brought all the tools needed to beat the game. Y00 driver, we choose you!
- Under the back cover, we find: another cover. Moving on.
- We note here that the SD card reader is now permanently attached to the main board—whereas on the old Switch, we had [already removed it](#) by this point.
- Modularity is generally good for repair, so this is minor step backwards from our point of view.
- Let's peek under the metal shield and get our first look at the internals in the visible light spectrum.

## Step 5



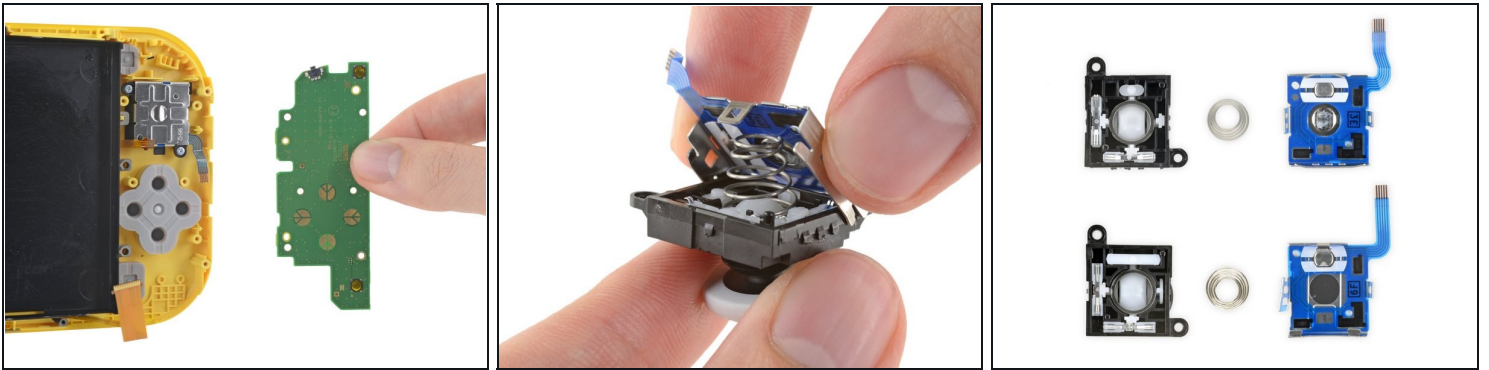
- Here we take a moment to blow the cover off our revised-for-2019 Switch and do some Lite comparisons.
- Most important change: the battery in the Lite is no longer upside-down. This alone makes our teardown worth the price of admission.
- When it comes to other changes, here are two truths and a lie: (1) The battery is physically smaller and sits next to a lighter-gauge heat pipe. (2) The headphone jack has gone fully modular. (3) The bubblegum securing the heat sink is now cherry-flavored.
- Muscling up the battery, we find... a wet paper towel? Maybe someone was trying to wipe off all this sticky battery adhesive.
- This 13.6 Wh battery is all you need for 3-7 hours of playtime, according to Nintendo. That's more than you could get from the original Switch and its [16 Wh battery](#) (but less than the updated Switch, which can last up to 9 hours).

## Step 6



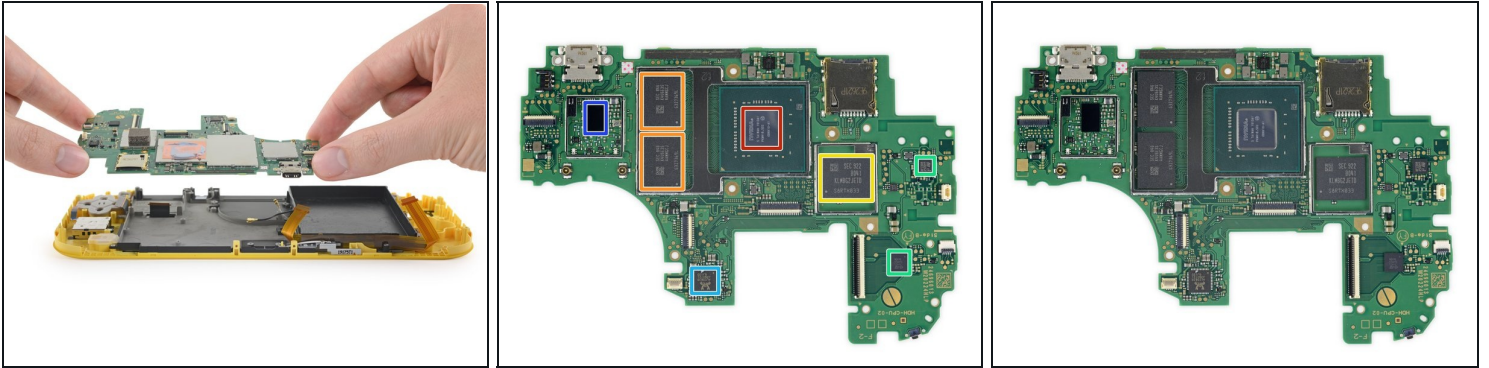
- More efficient hardware not only makes for longer battery life, but also less waste heat. So we're pleasantly unsurprised to see this Switch packing a downsized heat sink and fan.
- ① In case you're worried about decreased thermal performance, remember that this Switch will be only be outputting to its built-in display at 720p or less, unlike the big Switch, which has to output up to 1080p when docked.
- Another slight difference: the previous L and R triggers pressed directly against a button on a PCB, but the new triggers switch to a membrane-style key. This could help with ingress protection, and definitely gives the triggers a more pleasing actuation distance.
- The speaker drivers look to be the same as those in the [original Switch](#), but the housings are all new.
- Not only are they now downward-firing, but they've also expanded up into the space formerly held down by the two Joy-Con batteries. Although we haven't done a head-to-head sound test, we'd be surprised if the Lite didn't come out on top.

## Step 7



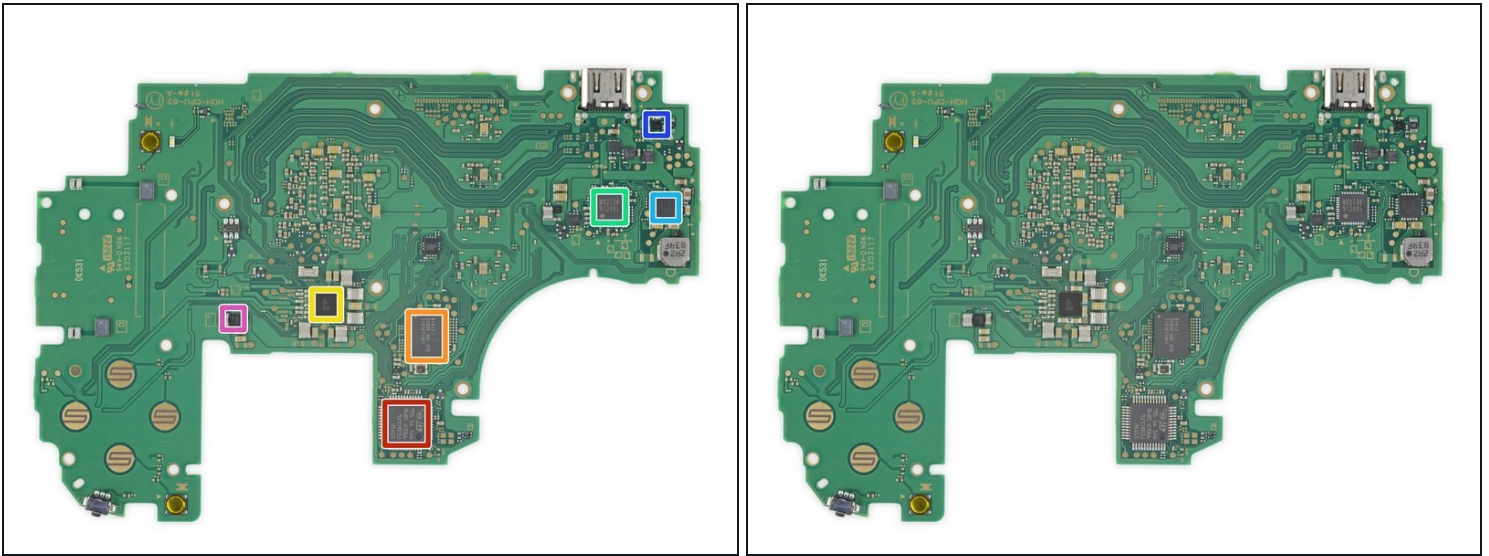
- Pulling aside a dedicated mini-joycon board, we get down to a source of recent controversy in the Switch—[the joystick](#).
  - Initially, these joysticks look pretty similar to the 2019 Switch joysticks as we crack open their cases—but the design of the clasps around the edges is a bit different, and the case is easier to open overall.
  - Hoping to find some kind of [drift-related](#) improvement, we open up both the Switch Lite (top) and 2019 Switch (bottom) joystick assemblies and lay them out for your viewing pleasure.
  - Things on the inside don't immediately seem *too* different, but we do notice some new trace routing, a narrower stick click button, and slightly wider-looking metal sliders.
- ① A popular guess at the cause of joystick drift is that the black contact pads under the sliders wear down over time. They appear unchanged here, but it's possible they might be made of tougher stuff this time. Unfortunately that's beyond the scope of our testing for now.

## Step 8



- Removing the board, we note that the [formerly modular](#) flash storage is also now soldered down. (DIY storage swaps in the original Switch didn't *work*, but were at least physically possible.)
- Side A of this silicon [capybara](#):
  - Nvidia ODNX10-A1 (Tegra X1-based SoC, presumably a custom riff on the [T210B01](#) variant)
  - 2x Samsung K4U6E3S4AM-MGCJ LPDDR4X DRAM 16 Gb (4 GB total)
  - Samsung [KLMBG2JETD-B041](#) 32 GB eMMC flash storage
  - ST Microelectronics [ST21NFCD](#) NFC controller and [FingerTip](#) touch screen controller
  - Realtek ALC5639 audio codec
  - Cypress [CYW4356X](#) 802.11ac Wi-Fi + Bluetooth 5.0 SoC

## Step 9



- Let's turn that copybara around for some more chips:
  - ST Microelectronics [STM32F038C6](#) 32-bit microcontroller w/ 32 KB flash
  - B1913 GCBRG HAC STD T1056719A1 secure MCU (likely)
  - Maxim Integrated [MAX77620HEWJ](#) power management IC
  - Rohm [BM92T10MWV-Z](#) USB-C power delivery controller
  - Texas Instruments [BQ24193](#) battery charge management
  - Maxim Integrated [MAX17050](#) battery fuel gauge
  - Ricoh [RP602Z330C](#) 1.5 A buck-boost regulator

## Step 10



- ★ The original Switch had a [non-laminated, air-gapped display](#)—a rarity these days, but it makes for cheap and easy cracked screen repairs. On a drop-prone mobile device, this goes a long way toward making repairs affordable.
- So how does the Switch Lite fare?
- A little heat and prying is all it takes to coax the display assembly from the frame—so far so good.
- With a bit more convincing, the digitizer/screen separates from the display. Success! The Switch line's record remains intact.

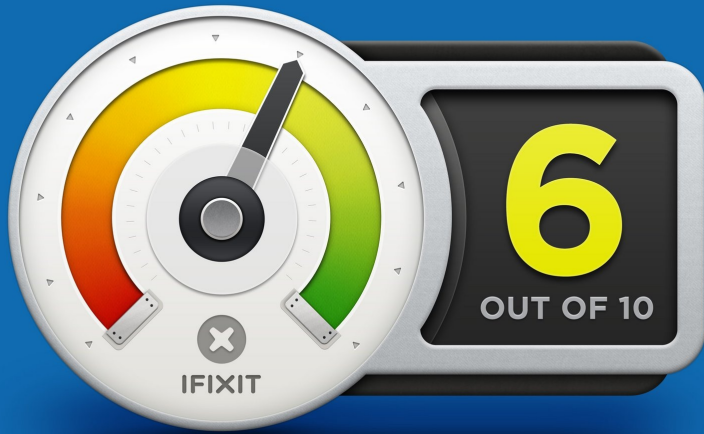
## Step 11



- Light on the wallet, light on the features, Lite in the layout.
- Modularity is definitely a feature that was cut for this diet Switch, lacking swappable controllers, storage, and SD card tray.
- A non-fused display and digitizer bode well, as well as a replaceable Game Card reader and headphone jack.
- Not quite as cool as the Switch, and not quite as over-featured as the 3DS, this Lite *seems* to fit just right. But what about that reparability score?

## Step 12 — Final Thoughts

### REPAIRABILITY SCORE:



- The Nintendo Switch Lite earns a **6 out of 10** on our reparability scale (10 is the easiest to repair):
  - Screws, rather than adhesives, secure most components.
  - Many components, including the joysticks, fan, and headphone jack, are modular and can be replaced independently.
  - The battery, though strongly glued down, can be replaced shortly after removing the rear case.
  - The digitizer and display are not fused, but are firmly glued in place.
  - The flash storage and SD card reader are now soldered directly to the motherboard.
  - Uncommon tri-point screws hinder all repairs.